

DECLARATION

of the vulgar new

HEAVENS FLATFORM.

Serving not onely for this Age, but also for the future Age of 100 years.

Here you are at first to knowe, that the motion of the Sun and the time do alwayes concur, and therefore is the one the measure of the other. For by the Time is to be knowne the place of the Sun, and again by the Suns place you may knowe the Time: therefore you must either knowe the Time or the place of the Sun, both of them you may easily find in the Heavens-Flatform, do but lay the dial A or B on the desired day of the yeare and see then what degree the dial doth touch upon the Sodiack, and you will find the thing desired.

I. E X E M P L E.

How to knowe at any time of the yeare in what Degree of the Sodiack the Sun is.

Exemple on the first day of May, lay the dial A upon the said day, and see what degree the dial doth cut upon the Sodiack, you will finde it to be the 12th of Taurus being the place of the Sun.

II. E X E M P L E.

How at any time to knowe the rising and going under of the Sun.

Suppose it be the 24th. of May, then you must lay the dial on the said day, and see where it cuts the Sodiack, there you must make upon the dial a signe of chalck or anny thing else that may easily be rubbed out, which signe demonstrates the Sun, turn then the dial first so long to the East-side of Heaven, til the said signe comes to touch the crumbe Horizon, see then without upon what houre and minute the dial doth lye on the houre circle, you will find the Suns rising at 4 a clock in the morning, and if you turn the said point to the West-side of Heaven upon the Horizon, then you will see the dial to lye upon 8 a clock in the evening, being the going under of the Sun, then you will also see that the Sun riseth then 36 degr. 30 minut. from the East to the Northward, and by consequence so many Degrees and min. lesse from the West to the Northward.

III. E X E M P L E.

How you may see in the Night by the Starrs what time it is,

Suppose you doe but see anny acquainted Starre to rise or stand in the S. N. E. or Westward, let it be the three Kings arising the first day of October, in the night, and that by it you would knowe how late it is; then you must lay the dial A on the said day, and the dial B over the 3 Kings, and give then a signe upon the dial B over the 3 Kings, then you must firmly turn both dials alike to the Eastward, til the said signe upon the dial B doth cut or touch the Horizon, and see then upon what houre and minute the dial A lieth, you'll find it to be 11 a clock in the evening, being the right time of the night.

I. P R O B L E M E.

How you may upon every Poles high find the rising and going under of the Heavens lights after you have taken the Poles high, and the declination or anny acquainted Starres.

You must place one foot of the Compass in the Centrum, of the Heavens-Mirtour, upon the Dial A, and the
A other

other downewards, as far as the Degree of the Declination of the Sun or Starrs; with this opening of the Compassis you must place the one foot upon the edge-side of the dial A upon the complement of the Poles height which you have taken; and slide the dial A towards 6 a clock, (or to the dial B which may be laid along by 6 a clock (or the edge-side of the dial B.) See then how in anny degrees the dial A lieth upon the houre-circle from 6 a clock, which will be the true breadth of the rising and going under of the Sun or Starrs.

I. E X E M P L E.

Desiring to know on the 21th. of June, where the Sun riseth and goeth under, being beginning of *Cancer*, on the Poles height of 52 degrees. Then you must place one foot of the Compassis in the *Centrum* of the dial A, and the other downewards as far as on 23 degr. 30 min. being then the Declination of the Sun; with this opening of the Compassis you must place one foot on the edge-side of the dial A upon the Complement of the Poles height, being 38 degr. then you must turn the dial A towards 6 a clock, til the other foot of the Compassis comes triangularly to touch the line of 6 a clock. See then how many degrees the dial A lieth off from 6 a clock. You'll find it to be very neare 40 degr. 20 min. And so far doth the Sun then rise from the E. to the N. upon each Northern breadth of 52 degr. and goeth likewise 40 degr. 20 min. under from the W. to the Northward. And if the Sun be in the first degr. of *Cancer*, then it is just the same.

II. E X E M P L E.

Desiring to know on the Northern breadth of 50 degr. how many degrees the Southern Ey of the Bul called *debaran* riseth from the E. to the N. Fore the doing of it, you must place one foot of the Compassis in the *Centrum* of the dial A, and the other as far as the Declination of *Aldebaran* being 16 degrees, with this opening of the Compassis you must place one foot upon the complement of the Poles height of 40 degrees, on the dial A, then you must turn the said dial til the other foot of the Compassis comes triangularly to touch the line of 6 a clock. See then how many degrees the dial A lieth off from 6 a clock, you'll find very neare 25 degr. 20. min. And so many d.g. doth *Aldebaran* then rise from the E. to the N. it doth also go under 25 degr. 20 min. lesse from the W. to the N.

III. E X E M P L E.

Desiring to know on the Southern breadth of 20 degr. how many degrees the *Spica Virginis* riseth from the E. to the S. and that, because the declination of *Spica Virginis* is Sourhly. You must place one foot of the Compassis in the Center of the Dial A, and the other downewards as far as on 9 degr. being the declination of *Spica Virginis*, with this opening you must place one foot of the Dial A upon the complement of the Poles height of 70 degrees, then you must turn the Dial A from the E. to the S. till the other foot of the compassis comes triangularly to touch the East line or the line of 6 a clock. See then how many degr. the Dial A lieth off from 6 a clock, you find very neare 10 degr. and so far doth *S. Virginis* from the E. to the S. and goeth like wise so far unter from the W. to the S.

II. P R O B L E M E.

How to find the rising and going under of the Sun, or of anny acquainted Starrs, and that upon every Poles high.

Place one foot of the Compassis in the center of the dial B, and the other downeward, along by the Edge-side as far as on the degree of the Declination of the Sun or Starrs, with this opening of the Compassis you must place one foot on the edge side of the dial B upon the Complement of the Poles height, add slide the Dial B from the E. to the N. or S. til the other foot comes triangularly to touch the line of 6 a clock. Then you must see on what houre and min. the dial B lieth, which is the true time of the Suns rising, which you may also being to the going under.

I. E X E M P L E.

Desiring to knowe the rising of the Sun, on the N. breadth of 25 degr. being the 21th. of June, when the Suns Declination is Northly 23 degr. 32 min. you must place one foot of the Compassis in the *Centrum* of the dial B, and open the other foot downewards as far as on 23 degr. 32 min. with this opening of the Compassis you must place one foot on the edge-side of the dial B upon the Complement of the Poles height of 38 degrees, sliding the dial B from the E. to the N. til the other foot of the Compassis comes triangularly to touch the line of 6 a clock. See then upon what houre and min. the dial B lieth on the houre circle, you'll find it to be in the morning at 5 a clock 15 min. being the right time of the Suns rising, the same is in the evening at 8 a clock 15 min. the Suns going under.

II. E X E M P L E.

Desiring to knowe on the Southern breadth of 40 degr. being on the 21 of June, at what time the Sun doth there rise. Then you must place one foot of the Compassis in the *Centrum* of the dial B, and the other foot downewards, as far as on 23 deg. 30 min. being at the said time the Declination of the Sun, with this opening you must place one foot of the Compassis on the dial B upon the complement of the Poles high of 50 degr. and turn the dial B from the E. to the N. til the other foot of the Compassis comes triangularly to touch the East line of 6 a clock, see then upon what houre and min. the dial B lieth, you'll find neare enough in the morning 17 houres 30 min. being there the rising of the Sun, the same is its going under in the evening at 4 a clock 35 min.

Nota. You must knowe that if you wil, use the Heavens Platform over the South-side of the *Equinoctial Line*, then you must take the house contrary to that as they are signed upon the Heavens Mirrour, fore that which is over the North-line 4 a clock in the morning, the same is Southly from the line 8 a clock in the morning, and so is the rest accordingly.

III. E X E M P L E.

Desiring to knowe on the Northern breadth of 40 degrees, being the first of August, what time the great Dog *Syrus* shal rise. Lay the Dial B over *Syrus* and the Dial A upon the first of August, then you must place one foot of the compassis upon the Center of the Dial B, and open the other as far as on 16 degr. 15 min. being the declination of *Syrus*, with this opening you must place one foot of the compassis on the Dial B, upon the complement of the Poles high of degrees. Then you must firmly turn both Dials alike from the E. to the S., till the other foot of the compassis comes triangularly to touch the East line of 6 a clock. See then upon what houre and minutes the Dial lieth, you'll find neare enough 4 a clock 42 minutes. Fore to find its going under, you must firmly turn both dials alike from the West to the Southward til the other foot of the compassis comes triangularly to touch the West line of 6 a clock, see then upon what houre and min. the Dial A lieth, you'll find 2 a clock 48 minutes.

III PROBLEME.

How to find at al set times the Declination of the Sun upon the Heavens mirrour. Which is indeed very profitable for al Sea men, fore it serves not onely fore this present Age, but also fore the future Age of 100 years; when al Books that are made fore that purpose shal be of no worth.

Fore to find the Declination of the Sun upon the Heavens-Mirrour, you must knowe that the Suns place is there set according to the two Years, before and after the Leape year, and that especially upon the future Age, which doth almost differ a whole degree in the Sodiack with this present Age to the year 1700, and in the Suns Declination in March and September about 24 minutes. So that al Tables of the Suns Declination which are reckened out with such a difficult calculation, shal after the year of 1700 be of no use or worth to any Seaman; because the yeare of 1700 must be a common yeare. Desiring then to knowe the Declination of the sun upon some certain or set day in this present Age, then you must alwayes lay the dial A one day farther then the set day, and in the second yeare after the Leap-year you must lay the dial upon the midst of the day, but being the third yeare after the Leape year, then you must lay the dial A on the first fourth part, being in the Sodiack about 15 min. backward.

But being the first yeare after the Leap-year, then you must lay the dial upon the third fourth part of the day, being very neare 20 min. farther in the Sodiack, then in the third yeare.

And when it is a Leap-year, then you must lay the dial A upon the beginning of the day, til to the 28 of February; but being after the 28 of February, then you must al the yeare along lay the dial A upon the end of the day. And if you do truly understand and perform this, then you wil at al times knowe the Declination of the Sun so perfect and exactly, as the Navigation requires. This is the Head thing I have to say of my Heavens-Mirrour.

I. E X E M P L E.

Desiring to knowe the Suns Declination on the 30th. day of April 1691 or 95 being the third yeare after the Leap-year, then you must lay the dial A upon the first of May, to wit upon the fourth part of the parck of that day. See then where the Dial dath cut or touch the Sodiack, you find it to be very neare the 10th. degr. 15 min. (being at the same time the true place of the Sun) that is 40 degr. 15 min. of γ . Farther you must lay the Dial A over the 40 degr. 15 min.

15 min. off from γ , in the degrees of the Equinoctial or houre circle, then you must place one foot of the Compassis on the dial A upon the greatest Declination of the Sun, being 23 degrees 32 min. then you must open the other foot of the Compassis towards the Line of 6 a clock, to come triangularly with this opening of the compassis. Then you must place one foot of it in the Center of the Dial A, and turn the other downwards, and see where it falls, you find it to be very neare 14 degrees 55 minutes, being at the said time the Suns Declination,

II. E X E M P L E.

Desiring to knowe the Suns Declination on the 30th. of April 1688 or 92. being the first year after the Leap-year. Then you must lay the dial A on the first of May, upon the utmost of the days park, see then where the dial A doth cut the Sodiack, you find it to be very neare the eleventh degree of *Taurus*, being the true place of the set time, that is 41 degrees of γ . Then you must further lay the dial A on 41 degrees of γ . as before, and place one foot of the Compassis on the dial A upon the greatest Declination of the Sun, being 23 degr. 32 min. then you must open the other foot of the Compassis, till it comes rect-angularly to touch the Line of 6 a clock, with this opening of the Compassis, you must place one foot of it in the Center of the dial A, and the other you must turn downwards, seeing upon what degree and minute it falls, you'll find it to be very neare 15 degr. and 10 min. being at the set time the true Declination of the Sun, differing little or nothing with the wise and artificial calculation, do so at al other times, til to the yeare of 1700, but after that time you must lay the dial upon the set day, considering that this use is principally (as I told you) practised and formed upon the future Age, where upon we shal also give some exemples, which also will serve for the better understanding of the former.

III. E X E M P L E.

Desiring to knowe the Suns declination on the 30th day of April 1706. being the second year after the Leape-year. Then you must at the same time lay the Dial upon the middle of the park of the said day, and see where the Dial A doth touch the Sodiack, you'll find it to be very neare the 9th degree and 30th minute of *Taurus*, being at the said time the true place of the Sun, differing almost a whole degree with the Year of 1686, for the Sun is 39 degr. 30 min. of γ . Then you must further place the Dial A on 39 degrees 30 minutes of γ . upon the Dial, in the same manner as I told you before, and then you must place one foot of the Compassis on the Dial A upon the greatest declination of the Sun, being 23 degrees 32 min. then you must open the other foot of the Compassis, till it comes triangularly to touch the Line of 6 a clock: with this opening you must place one foot of Compassis in the *Centrum* of the Dial A, and the other downwards, see then on what degree and minute the foot stands, you'll find it to be very neare 14 degrees 42 minutes, which is the said 30 day of April about noon, the declination of the Sun, differing also in the Suns declination with the Year of 1686 almost 18 min. So that by this exemple you may see that al Boocks and Tables concerning this matter which are formerly made, will altogether be in vain, and of no value, as soon as ever the Year of 1700 begins.

IV. E X E M P L E.

Desiring to knowe the Suns Declination in the yeare of 1710. whe the Sun is in the 18th. degr. of Ω . Then you must lay the dial A upon the 18 degr. you'll also see that the dial doth then lie on the eleventh day of August, about on the third fourth part of the park of that day, being in the evening about 6 a clock. Then you must further lay the dial A upon the 42th. degree, from \pm . to *Cancer* upon the houre circle, being on the 18th. degree of Ω , then you must place one foot of the Compassis on the dial A upon 23 degr. 32 min. as before, then you must open the other foot, rect-angularly unto the Line of 6 a clock, with this opening you must place one foot of the Compassis in the *Centrum* of the dial A, and then you must turn the other foot downwards, and see on what degree and minute it falls, you'll find it to be very neare 15 degr. 30 min. being at the said time the Declination of the Sun.

F I N I S.

